*Journal of the Geological Society, London*, Vol. **160**, 2003, pp. 1003–1008. Printed in Great Britain.

# Index

absolute age *see* $^{40}Ar/^{39}Ar$; $^{14}C$; $^{207}Pb/^{206}Pb$; Rb/Sr; Re/Os; Sm/Nd; U/Pb
accretionary prism, Iran 903–910
Acraman asteroid 545–554
Adria, seismotectonics 503–506
Albany–Fraser orogen 29–37
Alps, Palaeogene basin evolution 413–428
Amadeus Basin 825–828
ammonoids, Triassic biochronology 271–284
analogue modelling, deformation and Hormuz salt 719–733
anatexis, orogeny in India 39–46
Anatolides, Neotethyan ophiolites 947–962
Andes
  Colombian volcano 506–521
  sediment recycling in arc magma 57–70
  uplift and climate change 7–10
Anglesey, deformation studies 117–136
Antarctica
  decapod preservation 151–160
  Palaeozoic deformation 629–642
antimony deposits 299–308
Apennines
  orogenic cycle 429–434
  seismotectonics 503–506
$^{40}Ar/^{39}Ar$ age
  Dalradian of Ireland 911–924
  Himalaya 385–399
  Ronda peridotite 655–676
Arabian Platform, tectonic evolution 677–685
Aralka Formation 825–828
Archaean, greenstones in Zimbabwe 83–97
Armorican Basin 99–116
assimilation, Ethiopian Volcanic Province 47–56
Atacama, uplift and climate change 7–10
Atlantic Ocean (South), opening 703–717
augen granite, Neoproterzoic of Scotland 925–934
Australia
  impact craters 545–554
  Mesoproterozoic orogen 29–37
  Neoproterozoic basalts 985–990
  Neoproterozoic sediments 825–828
  Timor Sea orogenesis 991–1001
authigenesis, clay minerals 489–493

back-arc basins, Turkey 947–962
Balaton Highlands 271–284
basalts
  Cretaceous of Madagascar 477–488
  Neoproterozoic of Australia 985–990
  Palaeogene of Greenland 759–772
basement, Zagros Fold Belt 401–412
basin evolution, Alpine-Carpathian 413–428
Belize, K–T boundary 783–795
Betic Cordillera, Ronda peridotite exhumation 655–676
biochronology, Triassic ammonoids 271–284
biological evolution 815–818
biostratigraphy, radiolaria 591–599
Biscay, Bay of, deep structure 99–116
Bishri Block, tectonic evolution 677–685
black shales, Sb mineralization 299–308
blueschist facies, Dalradian of Ireland 911–924
Bohemian massif, structure 209–218
bones, diagenesis of 895–901
British Isles, elastic thickness 499–502
British–Irish ice sheet 847–855

$\delta^{13}C$
  isotope fractionation 71–82
  Palaeoproterozoic carbonates 601–612
$^{14}C$ age, British-Irish ice sheet wasting 847–855
calcite, isotope fractionation in Palaeoproterozoic 71–82
calderas, Taupo Volcanic Zone 3–6
Caledonian orogeny
  granite deformation 259–269
  plate motions 219–229
Caledonides of Scotland 555–564
Cambrian, Gondwana evolution 613–628
Canada, Carboniferous vegetation 643–648
canali, Venus 319–327
carbon *see* $\delta^{13}C$ *also* $^{14}C$
carbonate platforms, China 285–298
carbonates, diagenetic 881–894
Carboniferous
  Eastern Variscide rotations 209–218
  Nova Scotia vegetation 643–648
Carpathians, Palaeogene basin evolution 413–428
Cavalli Seamount 971–983
cements, carbonate 881–894
Cenozoic, orogenic termination zone 575–590
Central African Copperbelt 11–14
Chalk, synsedimentary features 797–813
Chicxulub crater 783–795
China
  Mesozoic magmatism 963–970
  orogenic termination zone 575–590
  Permian sequence stratigraphy 285–298
clastic dykes, Antarctica 629–642
clay minerals and reservoir quality 489–493
cleavage, deformation in Antarctica 629–642
climate change 337–340
  Andean uplift 7–10
  Carboniferous 643–648
coal measures, Permian of China 285–298
coastal sedimentation in Iran 903–910
coesite, in eclogites of Himalaya 367–376
collision tectonics, Timor Sea 991–1001
Colombia, volcano degassing 506–521
compression, Himalaya 345–366
contact aureole, Rum 15–27
continental collision, discussion 819–824
continental shelf, debris avalanches 309–317
creep, Mam Tor landslip 735–744
Cretaceous, basalts of Madagascar 477–488
Crete, neotectonics 161–181, 819–824
Crotone Basin, prograding wedge architecture 863–880
crustaceans *see* decapoda
crustal shortening, Zagros fold and thrust belt 719–733
crustal structure, Vøring Basin 197–208
crustal thinning, Bay of Biscay 99–116

Dalradian, granite–migmatite 447–457
Dalradian Supergroup
  Ireland 911–924
  Laurentia 231–246
debris avalanches, Vesuvius 309–317
decapoda, Eocene 151–160
decollements, Zagros Fold Belt 401–412
decompression, Grenvillian orogeny 565–574
deformation
  Anglesey 117–136
  Antarctica 629–642
  Great Glen area 881–894
  Italy 503-506
degassing, Andean volcano 506–521
deglaciation, British Isles 847–855
Derbyshire, Mam Tor landslip 735–744
Devonian
  Caledonian plate motion 219–229
  Caledonian shear zones 137–150
  Gondwana reconstruction 459–476
diagenesis of bones 895–901
dinosaur bone diagenesis 895–901
discussions
  Hellenic forearc transtension 819–824
  Lizard peridotite exhumation 331–335
  Precambrian volcanicity 329–330
  sand intrusion formation 495–496
dolomite, isotope fractionation in Palaeoproterozoic 71–82
drainage system, Tertiary of southern Britain 829–845
dykes
  Australian Mesoproterozoic 29–37
  Etna eruption 531–544

Eastern Ghats, crustal anatexis 39–46
Eastern Ladakh, exhumation history 385–399
eclogite
  role in Grenvillian orogeny 565–574
  Tertiary of Himalaya 367–376
editorial 1–2
ejecta, impact craters 545–554
elastic thickness, British Isles 499–502
England
  Chalk synsedimentary features 797–813
  Mam Tor landslip 735–744
  Ordovician magmatism 773–781
  Precambrian volcanicity, discussion 329–330
  southern area drainage systems 829–845
Eocene, decapod preservation 151–160
erosion, studies on Venus 319–327
Ethiopian Volcanic Province 47–56
Etna, Mount 531–544
Everest massif, tectonic evolution 345–366
evolution and gene reactivation 815–818
exhumation
  dating in Himalaya 385–399
  eclogite of Himalaya 367–376
  Ronda peridotite 655–676
extension and extensional tectonics
  Caledonian of Norway 137–150
  Himalaya 345–366
  southern Italy 863–880
  Variscan of Iberian arc 435–445
  western Mediterranean area 655–676
faecal casts 489–493

Falkland Islands, Gondwana studies 459–476
faults, Iranian tectonics and sedimentation 903–910
fission track dating
  Himalaya 385–399
  Tertiary Alpine basin 413–428
flood basalts
  Cretaceous of Madagascar 477–488
  Palaeogene of Greenland 759–772
fluid circulation
  Rum aureole 15–27
  Sb mineralization 299–308
folds
  Anglesey 117–136
  Zagros Fold Belt 401–412
Foraminifera (planktic), Toarcian 341–343
forced regression, southern Italy 863–880
forearc basin, Greece 161–181, 819–824
forelands, deformation in Italy 503–506
fossils
  ammonoids 271–284
  decapoda 151–160
  dinosaurs 895–901
  foraminifera 341–343
  ostracodes 815–818
  plants 643–648, 857–862
  radiolaria 591–599
fractional crystallization
  Ethiopian Volcanic Province 47–56
  Grampian granite 447–457

gas hydrates 341–343
geochemistry
  Cretaceous basalts 477–488
  Sb mineralization 299–308
  sediment recycling in Chile Trench magma 57–70
geochronology *see* $^{40}Ar/^{39}Ar$; $^{14}C$; $^{207}Pb/^{206}Pb$; Rb/Sr; Re/Os; Sm/Nd; U/Pb
geological map, Himalaya 345–366
Germany, Sb mineralization 299–308
glaciations, initiation of 337–340
Glenelg–Attadale inlier 565–574
global climate change, Carboniferous 643–648
Gondwana
  assembly of 745–757
  Cambrian evolution 613–628
  coastline of 459–476
  Neoproterozoic 985–990
Grampian
  granite 447–457
  orogeny in Ireland 911–924
granites
  Cambrian of Gondwana 613–628
  fractional crystallization 447–457
  Iberian plutons 435–445
  Norwegian 935–946
gravity anomalies
  British Isles 499–502
  Iberian plutons 435–445
Greece neotectonics 161–181, 819–824
greenhouse and oceanic circulation 337–340
Greenland (East), Palaeogene basaltic volcanism 759–772
greenschist facies, isotope fractionation studies 71–82
greenstone belts, Zimbabwe 83–97
Grenvillian orogeny, Scotland 565–574
Guatemala, K–T boundary 783–795

Hebrides, Outer, $^{87}Sr/^{86}Sr$ in tooth enamel 649–653
Hellenic forearc 161–181, 819–824
Hesham Formation 285–298
Himalaya
  eclogite exhumation 367–376
  exhumation history 385–399
  plate subduction studies 377–384
  tectonic evolution 345–366
Hormuz salt, effect on deformation 719–733
Humboldt current 7–10
Hungary, Triassic biochronology 271–284

Iberian arc, laccolith emplacement 435–445
icehouse and oceanic circulation 337–340
impact craters, South Australia 545–554
India, crustal anatexis 39–46
Indian Plate, subduction 377–384
intracontinental belts, China 575–590
intraplate deformation, South America 703–717
inversion tectonics, Apennines 429–434
Iran
  structural studies 401–412
  tectonics and sedimentation 903–910
Ireland
  deglaciation 847–855
  Grampian metamorphism 911–924
ironstone, Zimbabwe 83–97
island arcs, plate subduction studies 377–384
isotopes
  radio-isotopes in dating *see* $^{40}Ar/^{39}Ar$; $^{14}C$; $^{207}Pb/^{206}Pb$; Rb/Sr; Re/Os; Sm/Nd; U/Pb
  stable isotopes *see* $\delta^{13}C$; $\delta^{18}O$; $\delta^{34}S$
isotopic signatures 377–384, 649–653, 745–757, 963–970
Italy
  Apennine orogenic cycle 429–434
  prograding wedge architecture 863–880
  seismotectonics 503–506
  volcano hazard studies 309–317
Izmir–Ankara–Erzincan suture zone 947–962

Joggins Formation 643–648
Jurassic
  Kimmeridgian sandstone dykes 881–894
  Toarcian Foraminifera 341–343
K–T boundary, Belize 783–795
Kangerlussuaq Basin, Palaeogene basaltic volcanism 759–772
Katangan lapilli tuff 11–14
Kimmeridgian, sandstone dykes 881–894
Knoydartian orogeny, Scotland 555–564
Kohistan island arc, plate subduction studies 377–384
Kola Superdeep Drillhole 71–82

La Meseta Formation 151–160
La Tojiza pluton 435–445
laccoliths, Iberian 435–445
Lake District, Ordovician magmatism 773–781
landscapes, Tertiary of southern Britain 829–845
large igneous province (LIP), Cretaceous of Madagascar 477–488
Laurentia, provenance studies 231–246
Lazarus taxa 815–818
leucogranite
  Dalradian 447–457
  Himalaya 345–366
Lewisian gneiss
  effect on tooth enamel analysis 649–653
  Rum aureole 15–27
Limpopo Belt 601–612
lithofacies, Gondwana reconstruction 459–476
Lizard peridotite, discussion 331–335

Madagascar, Cretaceous basalts 477–488
Maghrebidis 183–195
magma
  Etna eruption 531–544
  geochemistry 477–488
  supply to continental volcanoes 523–530
  transport and volcano degassing 506–521
magmatism
  Mesozoic of North China 963–970
  Neoproterozoic of Scotland 925–934
  Ordovician of Lake District 773–781
  Vøring Basin 197–208
magnetic susceptibility, Iberian plutons 435–445
Makran accretionary prism 903–910
Mam Tor landslip 735–744
mass extinctions, Toarcian 341–343
Mesoarchaean terranes 11–14
Mesozoic, magmatism in North China 963–970
meta-arkose, Rum 15–27
metagranite, deformation in Scotland 259–269
metamorphism
  Australian Mesoproterozoic 29–37
  Dalradian of Ireland 911–924
  Everest massif 345–366
  Knoydartian orogeny 555–564
  Kola Superdeep Drillhole 71–82
  Miocene seamount 971–983
  Pan African orogeny 745–757
  Rum, Scotland 15–27
  Silurian of Scotland 259–269
microanalysis, plant fossils 857–862
microscopy, plant fossils 857–862
migmatites
  Dalradian of Scotland 447–457
  Norwegian 935–946
Miocene, seamount metamorphism 971–983
models, crustal 499–502
Moine, peak metamorphism 555–564
Moine Supergroup 247–257, 925–934
  Caledonian deformation 259–269
Molise seismic sequence 503–506
monozite age
  Albany–Fraser orogen 29–37
  orogeny in India 39–46
mudstones, effect on Mam Tor landslip 735–744

Nd isotopes signature 377–384
Nd systematics 745–757
Neogene
  Timor Sea orogenesis 991–1001
  *see also* Miocene
Neoproterozoic, Australia 825–828, 986–990
neotectonics
  Greece 161–181, 819–824
  Taupo Fault Belt 3–6
Neotethys, ophiolites of Turkey 947–962
Neptune Range, Antarctica 629–642
Nesna shear zone 137–150
Nevado del Ruiz volcano 506–521

New Zealand
Miocene metamorphism 971–983
neotectonics 3–6
volcano growth 523–530
Norgasis multichannel reflection and refraction 99–116
Norway
Caledonian shear zones 137–150
crustal structure at margin 197–208
Western Gneiss Complex 935–946
Nova Scotia, Carboniferous vegetation 643–648

$\delta^{18}O$
bone diagenesis 895–901
isotope fractionation 71–82
oceanic gateways 337–340
oceans, studies on Venus 319–327
Oligocene, volcanics of Ethiopia 47–56
ophiolites
dating with radiolaria 591–599
Neotethyan of Turkey 947–962
Ordovician, Lake District magmatism 773–781
orogenesis, Neogene of Timor Sea 991–1001
orogeny
Apennines 429–434
Palaeozoic of Antarctica 629–642
Proterozic of India 39–46
ostracodes 815–818
Otago, volcano growth 523–530
oxygen *see* $\delta^{18}O$

*P–T–t* paths
Eastern Ghats belt 39–46
Ronda peridotite 655–676
Pacific Ocean seamount 971–983
Pakistan
eclogite exhumation 367–376
plate subduction studies 377–384
palaeoclimate, British-Irish ice sheet wasting 847–855
palaeoecology, Eocene decapoda 151–160
palaeoenvironment, Vendian 545–554
Palaeogene
Alpine-Carpathian basin 413–428
basalts of Greenland 759–772
*see also* Eocene; Oligocene
palaeogeography, Alpine–Carpathian 413–428
palaeomagnetism
Eastern Variscides 209–218
Tyrrhenian Sea spreading 183–195
palaeontology *see* fossils
Palaeoproterozoic
carbonates of Limpopo belt 601–612
dolostone isotope fractionation 71–82
palaeoshorelines, New Zealand 3–6
Palaeozoic, deformation in Antarctica 629–642
Palmyride Mountain Belt 677–685
Pan African orogeny 745–757
Pannonian Basin, volcano growth 523–530
passive margins, Bay of Biscay 99–116
$^{207}Pb/^{206}Pb$ age
Pan African orogeny 745–757
Moine Supergroup 247–257
Pb isotopes signature 377–384
peridotite
Lizard (discussion) 331–335
Ronda 655–676
Permian, carbonate sequence stratigraphy 285–298
permineralization, plant fossils 857–862
petrogenesis, Ethiopian volcanics 47–56
petrology, Cavalli Seamount 971–983
phylogeny 815–818
plant fossilization 857–862
plate rotation, Sicily 183–195
plate tectonics, Palaeogene 759–772
Pleistocene, sediment recycling in Chile Trench magma 57–70
plutons, Iberian arc 435–445
polyphase processes, Anglesey 117–136
Port Stephens Formation 459–476
Precambrian
Knoydartian orogeny 555–564
Limpopo Belt 601–612
volcanicity in England and Wales, discussion 329–330
preservation, plant fossils 857–862
Proterozoic
metamorphism 745–757
Moine Supergroup provenance 247–257
provenance
Dalradian Supergroup 231–246
Moine Supergroup 247–257
pyroclastics, Palaeogene of Greenland 759–772

radio-isotopes *see* $^{40}Ar/^{39}Ar$; $^{14}C$; $^{207}Pb/^{206}Pb$; Rb/Sr; Re/Os; Sm/Nd; U/Pb
radiolaria, in ophiolite dating 591–599
Rb/Sr age 911–924
Re/Os age 825–828
reservoir quality, and clay minerals 489–493
Rhenish massif, Sb mineralization 299–308
rheology, mudstones and landslip 735–744
Rhoscolyn Anticline 117–136
rhyolites, Ethiopian 47–56
rifting
Bay of Biscay 99–116
Gondwana evolution 613–628
Neoproterozoic of Scotland 925–934
Taupo Falt belt 3–6
Voring Basin 197–208
rivers, Tertiary of southern Britain 829–845
Rodinia 985–990
Ronda peridotite, *P–T–t* array 655–676
rotation, Eastern Variscides 209–218
Rum Tertiary Igneous Complex 15–27

$\delta^{34}S$ 299–308
sand intrusions, discussion 495–496
sandstone dykes 881–894
Scandinavian Caledonides 137–150
Scotland
Dalradian migmatite 447–457
Dalradian Supergroup provenance 231–246
granite ages 259–269
Grenvillian orogeny 565–574
Knoydartian orogeny 555–564
Moine Supergroup provenance 247–257
Neoproterozoic granites 925–934
Rum Tertiary Igneous Complex 15–27
sandstone dykes 881–894
tooth enamel analysis 649–653
sea level, Gondwana reconstruction 459–476
seaward-dipping reflector sequences 985–990
sedimentary basins, Syrian tectonics 677–685
sedimentary structures, Chalk 797–813

sedimentation, Crotone Basin 863–880
segmentation, Andean belt 687–701
seismic data, Bay of Biscay 99–116
seismic methods
  Chalk synsedimentary features 797–813
  Palmyride Mt Belt study 677–685
seismotectonics, Italy 503–506
sequence stratigraphy
  Carboniferous of Canada 643–648
  Permian of China 285–298
shear zones, Caledonian 137–150
SHRIMP
  Albany–Fraser orogen 29–37
  Gondwana evolution 613–628
  Katangan lapilli tuff 11–14
  Lizard peridotite, discussion 331–335
Sicily
  Etna eruption 531–544
  orogenic rotations 183–195
Sierra de la Ventana Fold Belt 613–628
Silurian
  Caledonian deformation in Scotland 259–269
  Caledonian plate motion 219–229
  Gondwana reconstruction 459–476
Sm/Nd age 39–46
Snowball Earth 825–828
Society awards 497–498
Somma–Vesuvius volcano 309–317
South Africa, Limpopo Belt evolution 601–612
Spain
  laccolith emplacement 435–445
  Ronda peridotite exhumation 655–676
spherules, K–T boundary 783–795
Sr/Nd isotopic signature 963–970
Sr isotopes signature 377–384, 649–653
stable isotopes *see* $\delta^{13}C$; $\delta^{18}O$; $\delta^{34}S$
stream sediments, Tertiary of southern Britain 829–845
structural geology
  Apennines 429–434
  Dalradian of Ireland 911–924
  Zagros Fold Belt 401–412
Sub-Andean foreland, tectonostratigraphic synthesis 687–701, 703–717
subaqueous sediment, Venus 319–327
subduction
  Indian Plate 377–384
  Southern Chile Trench 57–70
subsidence
  Sub-Andean basins 687–701
  Taupo Fault Belt 3–6
sulphur *see* $\delta^{34}S$
Sveconorwegian orogeny 935–946
Syria, tectonic evolution 677–685

Taihang–Yanshan Province 963–970
Tanzania, Pan African orogeny 745–757
Taupo Fault Belt 3–6
Taupo Volcanic Zone 3–6
tectonics
  Himalaya evolution 345–366
  Iran inversion 903–910
  Pacific Ocean 971–983
  Palmyride Mt Belt 677–685
  Tien Shan, China 575–590
tectonostratigraphy, Sub-Andean foreland 687–701, 703–717
terranes, Mesoarchaean of Africa 11–14
Tertiary
  eclogite of Himalaya 367–376
  southern Britain drainage patterns 829–845
  *see also* Eocene; Miocene; Neogene; Oligocene; Paleogene
thermal metamorphism, Australian Mesoproterozoic 29–37
thermobarometry, Ronda peridotite 655–676
thin-skinned tectonics, Zagros fold and thrust belt 719–733
thrusts, Zagros Fold Belt 401–412
Tibet
  metamorphism 345–366
  ophiolites 591–599
Tien Shan, orogenic termination zone 575–590
time scale, Triassic biochronology 271–284
Timor Sea 991–1001
titanite age
  Caledonian deformation 259–269
  Knoydartian orogeny 555–564
Toarcian, foraminifera 341–343
tooth enamel, $^{87}Sr/^{86}Sr$ analysis 649–653
topography, British Isles 499–502
transgression-regresssion, Carboniferous of Canada 643–648
transition zones, Bay of Biscay 99–116
transpression, Caledonian 219–229
transtension
  Caledonian 219–229
  Hellenic forearc 161–181, 819–824
Triassic (Middle), biochronology 271–284
Turkey, Neotethyan ophiolites 947–962
Tyrrhenian Sea 183–195

U/Pb age
  Dalradian Supergroup 231–246
  Gondwana evolution 613–628
  granites of Scotland 259–269
  Grenvillian orogeny 565–574
  Knoydartian orogeny 555–564
  Lake District Ordovician magmatism 773–781
  Lizard peridotite, discussion 331–335
  Mesoarchaean of Africa 11–14
  migmatization in Norway 935–946
  Moine of Scotland 247–257, 925–934
  orogeny in India 39–46
  Palaeoproterozoic sediments 601–612
  Pan African orogeny 745–757
  Ronda peridotite 655–676
  Triassic biochronology 271–284
underplating
  Iran 903–910
  Vøring Basin 197–208
uplift and climate change and the Andes 7–10

Variscan orogeny, Sb mineralization 299–308
Variscides (Eastern) 209–218
vegetation, Carboniferous of Canada 643–648
Vendian impact craters 545–554
Venus, erosion studies 319–327
vertebrate bone diagenesis 895–901
Viking settlement on Lewisian gneiss 649–653
volatiles and volcano degassing 506–521
volcanic arcs, Southern Chile Trench 57–70
volcanicity, Precambrian of Wales, discussion 329–330
volcanoes and volcanism 523–530
  degassing 506–521
  collapse of Vesuvius 309–317
  New Zealand 3–6
Vøring Basin 197–208

Wales, Precambrian volcanicity, discussion 329–330
weathering of clay minerals 489–493
Western Gneiss Complex 935–946
wood fossilization 857–862
worms and bioweathering 489–493
wrenching, Eastern Variscides 209–218

xenotime age 29–37

Yarlung–Tsangpo suture 591–599

Zagros Fold Belt 401–412, 719–733
Zimbabwe craton 83–97
Zinga Sandstone 863–880
zircon age
  Caledonian deformation 259–269
  Dalradian Supergroup 231–246
  Gondwana evolution 613–628
  Grenvillian orogeny 565–574
  Lake District Ordovician magmatism 773–781
  Lizard peridotite, discussion 331–335
  Mesoarchaean of Africa 11–14
  migmatization in Norway 935–946
  Moine of Scotland 247–257, 925–934
  orogeny in India 39–46
  Palaeoproterozoic sediments 601–612
  Pan African orogeny 745–757
  Ronda peridotite 655–676
  Triassic biochronology 271–284